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are fairly well isolated. With the exception of one neighboring place, located about 400 yards from the Hill buildings, all other neighbors are at least a half mile distant. The cinnamon rats had not been observed prior to last Christmas, when Miss Hill saw a single animal in the grain house. From time to time others were seen in increasing numbers about the place.

The rats in the farm buildings have reached such numbers that they have become very destructive. This coupled with the fact that bubonic plague has appeared in Texas, made it necessary to attempt their extermination. During the past few weeks over 1,000 rats have been killed, and among these were found a number of the cinnamon variety. From the best available data, I estimate that at present the proportion of cinnamon specimens to all others is about 15 to 200.

The cinnamon rat has not been observed at any of the neighboring places, with the exception of the one located 400 yards away, where two animals were recently seen. All of the evidence points to the conclusion that this new variety arose, possibly as a mutation from *Mus alexandrinus*, on the Hill farm some time during the latter part of last year.

This rat should furnish an opportunity for some interesting genetic studies. In a recent letter Professor Castle has called attention to the value of this material. He says:

This would be very interesting genetic material for there is known to be a yellow variety of the roof rat, in addition to the black variety (*Mus rattus*), and if this cinnamon variety can be added to the number (with albinism, which I presume must exist among roof rats), it would be possible to work out from this material a parallel series to that which occurs in the Norway rat, possibly even a more complex series, and it would be of interest to know whether the linkage relations are the same in the two species.

J. T. PATTERSON

AUSTIN, TEXAS,
July 22, 1920

ANOTHER CORN SEED PARASITE

A FUNGUS which seems to have had very little consideration as a parasite has recently

been isolated from sweet corn seed by the writers while making a study of the internal parasites of some agricultural seeds.

This fungus was frequently found in corn from a field that last year had many dwarf and distorted stalks and some barren stalks and root rot. Seeds of this corn were examined for internal parasites by treating three minutes with corrosive sublimate solution according to a method which the authors have worked out and found to be very satisfactory. After this external disinfection they were planted in sterile tubes of nutrient solution on cotton. In about a week a white fungus had grown out from many of the seeds, some of which had also germinated. The roots of the seedlings were attacked by the fungus and died in about two weeks. Healthy seedlings in sterile tubes were inoculated and died in five to nine days.

The pathogenicity of the fungus was further tested under more normal conditions on corn grown in pots in the greenhouse, by pouring a suspension of the spores from pure cultures around the roots and by punctures with an infected needle just above the ground. Several of the plants so infected showed the dwarfness and distortion seen in the field the previous year. Those inoculated by puncture made 19 per cent. less growth in height than the controls and the soil inoculations made 13 per cent. less. Fungous mycelium was found in the discolored tissue at the base of the stem of these infected plants and the original fungus was obtained in cultures from this diseased tissue.

This fungus corresponds very well, so far as one of its methods of spore formation is concerned, with descriptions and figures of *Oospora verticilloides* Sacc., found on corn in Italy by Saccardo in 1877. It was extensively studied by Tiraboschi¹ in an investigation of organisms in corn that might be connected with pellagra. Tiraboschi, like practically all other students of corn diseases, apparently overlooked similar work done in Russia in 1895 and 1896 by Deckenbach, who in addi-

¹ *Annali di Botanica*, 1905.

tion found that *Oospora verticilloides* was parasitic on corn. Deckenbach's work was published in Russian journals from 1896 to 1899, and after Tiraboschi's paper was published, Deckenbach reviewed his original work in *Centr. Bakt.*, 1 Abt. Originale, 45:507-512. 1907.

It is probable that this fungus has been recorded under other generic names by some writers. *Cephalosporium sacchari*, described by Butler as a sugar cane parasite in India, accords very well with our fungus, except that the conidia in chains were not noted by him. The distinctions between *Cephalosporium*, *Acrostalagmus*, *Verticillium* and similar genera are slight, and as the chains of spores of our fungus are not always easily found, this corn parasite may sometimes have been classed in one of these genera. The writers find, however, that the conidia are produced in two different ways: at first they are aggregated in small droplets at the ends of the short, sometimes verticillate, lateral branches of the erect fertile hyphæ, and later produced in long chains on the ends of the upper branches. In older cultures septate spores are occasionally found and if a *Fusarium* stage should develop our fungus would have to be referred to Sheldon's *Fusarium moniliforme* which would then better be called *Fusarium verticilloides*.

J. B. S. NORTON,
C. C. CHEN

MARYLAND AGRICULTURAL EXPERIMENT
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SCIENTIFIC BOOKS

Orthoptera of Northeastern America with Special Reference to the Faunas of Indiana and Florida. By W. S. BLATCHLEY. May, 1920. Indianapolis: The Nature Publishing Co.; 8vo, 784 pages, 246 text figures and 7 plates.

This work comprises a very full consideration of the 353 species and 58 varieties of Orthoptera recorded from the region covered, and is the most comprehensive treatise on this group of insects so far published in America. While prepared more especially for the tyro, this volume contains a wealth of

assembled information of undoubted value to professional workers. As clearly set forth on pages 5 to 7 of the introduction, this work portrays the individual ideas of the author as to the systematic value of taxonomic characters used in classification. The conclusions reached, while not always in accord with recent usage, appear to be generally sound.

The biology and anatomy of the Orthoptera are treated at some length and the parasites and other enemies of the group are discussed. Economic questions are covered and the collection and preservation of specimens fully treated. The systematic portion includes dichotomous keys to suborders, families, genera and species. The derivation of generic names is given when known and many species are figured. The illustrations are mostly taken from previously published works, but the figures are well selected for the purpose of the present manual. Under each species is a description followed by notes on synonymy, distribution, habits, etc. Citations to literature are made by reference to a chronologically arranged author's bibliography. A glossary of terms used is given and there are two indices, one of synonyms with generic assignment and one of genera and species as here treated.

There is in general little to criticize in this very admirable treatise, though a critical review written by any specialist would probably point out a number of details considered open to special criticism. As is inevitable with a volume of this size a number of typographical and other errors occur. But on the whole it is a carefully prepared work, and one which will be indispensable to all students and collectors of these insects.

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Manual of the Orthoptera of New England, including Locusts, Grasshoppers, Crickets, and their allies. By ALBERT P. MORSE. April, 1920. *Proc. Bost. Soc. Nat. Hist.*, Vol. XXXV., p. 197-556, text-figures 1-99 and plates X-XXIX.